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THE

NATIONAL GEOGRAPHIC MAGAZINE

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The following articles will appear in the Magazine within the next few months:

"The Road to Bolivia," by Hon. Wm. E. Curtis.

"The Growth of Germany," by Professor J. L. Ewell of Howard University.

"The Annexation of the West," by F. H. Newell, Hydrographer, U. S. Geological Survey.

"The Growth of England," by Dr Edwin D. Mead, Editor of the *New England Magazine*.

"The Colonial Expansion of France," by Professor Jean C. Bracq of Vassar College, Poughkeepsie, New York.

"The Native Tribes of Patagonia," by Mr J. B. Hatcher of the Carnegie Museum, Pittsburg, Pennsylvania.

"Explorations on the Yangtse-Kiang, China," by Mr Wm. Barclay Parsons, C. E., surveyor of the railway route through the Yangtse-Kiang Valley.

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STREET SCENE IN JOHANNESBURG

THE

NATIONAL GEOGRAPHIC MAGAZINE

VOL. XI MAY, 1900 No. 5

THE GROWTH OF RUSSIA

By EDWIN A. GROSVENOR,

Professor of Modern Governments and their Administration in Amherst College

Russia in history and character is the product of geographic environment. Nowhere, not even in Greece or Spain, have physical causes been more powerful in determining the political and religious ideas of a people and in shaping that people's destiny. Slow working through the space of over a thousand years, those causes have evolved the Russian as he is and created the Russian Empire as we behold it today.

Of all European countries Russia is the farthest away. It is separate from us not only by leagues of territorial distance, but by the more repellent distance of language and race. The theory of government which it has developed is the direct opposite of our own. The Christianity to which it clings with unsurpassed devotion is neither Protestant nor Catholic. Its Eastern orthodoxy is a wall of separation from rather than a bond of union to the West. Russia stands in immense isolation apart from all the rest of the European continent, and yet its most commanding and stateliest figure.

PHYSICAL CHARACTERISTICS

Physical geography by an irregular north and south line divides Europe into two nearly equal but most dissimilar portions. In the western portion is seen every possible diversity of outline and surface. Enormous peninsulas thrust out from it into the sea and enormous gulfs and bays project themselves into the land. The limitless variety of the mountains, rivers, islands, and plains is mirrored in the limitless variety of the human groups which dwell upon them.

To all this eastern Europe presents a marvelous contrast. Whatever western Europe is, that eastern Europe is not. A prodigious plain, more than two thousand miles in length and almost a thousand miles in breadth, stretches southward from the flat shores of the Arctic Ocean. Hemming it in as boundaries and marking its extent are, on the northwest, the Valdai Hills and the granite cliffs of Finland; on the southwest, the Carpathians; on the south, the lofty spurs of the Crimea and of the Caucasus; on the east, the Ural Mountains. Thus outlined in immensity between its mountain limits is an area of almost two million square miles. This area is uniform and monotonous. Except at the extreme west, south, and east, nowhere does the surface of the ground attain an elevation of 1,000 feet. Not a single range of lofty hills, not a single lonely peak breaks the universal sameness. The rivers, tortuous and creeping, seem doubtful in which direction to find their channels. The Volga through its 2,400 miles of wandering has an average fall of only four inches to the mile. The geologic strata are horizontal. Rarely does a boulder or rock emerge above the surface of the ground. Even the winds are seldom fitful. Either they blow with icy coldness in unhindered sweep from the Arctic Ocean or come with the hot breath of the sands from the south and the deserts of Turkestan.

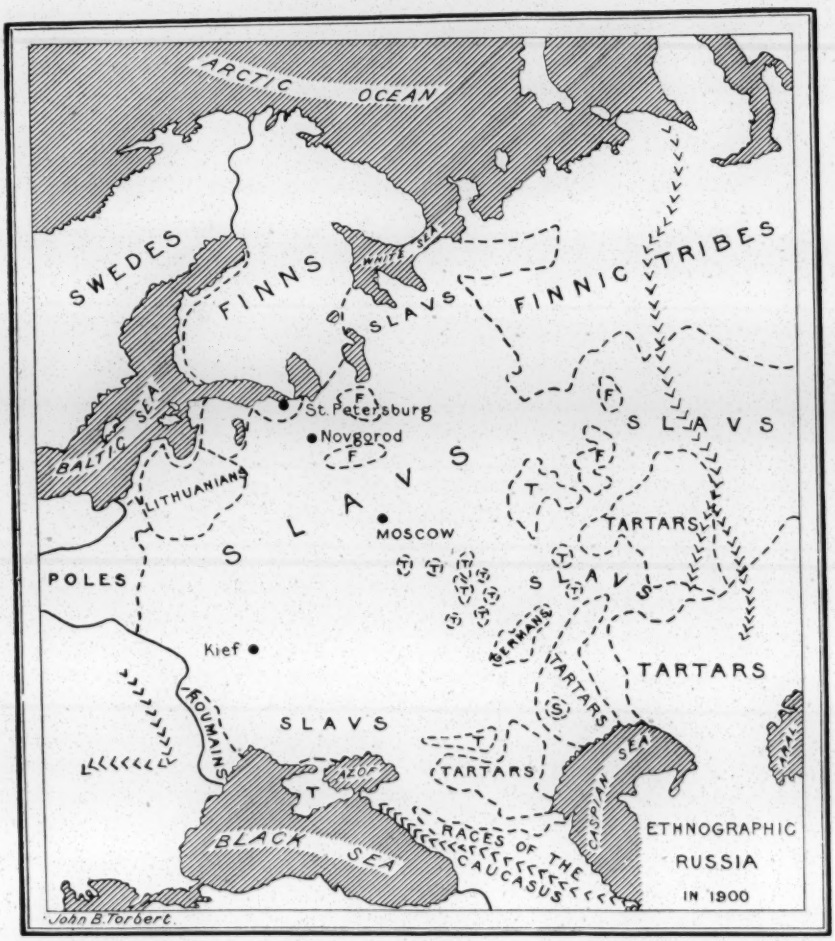
Degrees of latitude do not affect the essential territorial unity; neither do the four so-called agricultural zones which, rudely parallel to each other, occupy the entire area. By far the vastest is the forest zone or forest region, with an extent of 1,400,000 square miles. League after league, it stretches northward—somber, awful, infinite—broken here and there by wide, open tracts, and yet seemingly continuous until it ends amid polar marshes which never thaw. It is bounded on the south by the zone of black earth. Without artificial stimulant, there the exhaustless soil yields harvests as abundant as in the days when half of Europe was dependent upon it for food. It covers an area equal to the combined territory of Ohio, Indiana, Illinois, Michigan, and Wisconsin, and is prolonged beyond the Ural and Caucasus into western Asia. Next comes the region of the steppe, where a forest or a tree is rare, but where the tall grass and reeds shoot up often seven or eight feet high. All of this territory is capable of cultivation. It equals in extent Kentucky, Tennessee, Missouri, Arkansas, and Mississippi combined. Last of all are the indescribable, shapeless tracts along the southern mouths of the rivers. These form the so-called barren steppe, which no industry or art of

man can reclaim. Though resembling in no other respect those splendid States of the American Union—Georgia, Alabama, and Florida—it almost exactly coincides with them in area. The general aspect of this steppe is Asiatic rather than European.

No natural divisions anywhere intersect these zones to allow the erection of jarring local interests into separate states. The difference between them is in agricultural capability. They bear no other landmarks than the funeral mounds of a bygone age, which, laboriously constructed, dot their face. Over illimitable forest and illimitable steppe hovers a uniformity as limitless as the limitless variety of western Europe. In the upheaval and turmoil which preceded and followed the fall of the Roman empire, barbarian hosts of various lineage chased each other all over that prodigious plain which we call Russia today. Its predominant physical features were then the same as now. But upon the tumultuous, receding masses of humanity they produced impressions no more permanent than did the clouds. In time the tribal movements diminished and almost ceased. Most of the tribes that outlived disease and carnage settled in fixed habitations. The boundaries of their nascent states were vague and shifting, but they now possessed a recognized center from which to act and around which to grow.

THE SLAVS, THE FINNS, AND THE TARTARS

Thus in the western portion of the plain a large body of Slavs established their definite home. Of Indo-European or Aryan stock, they were the distant kinsmen of the Teutons, the Celts, and Greco-Latins, who had parceled out among themselves the central, western, and southern portions of Europe. By far the larger part of the plain remained under the control of various Turanian or Tartar-Mongolian tribes. They may be included under the general names of Tartars and Finns. The Finns held all the sparsely inhabited country between the Baltic Sea, the Arctic Ocean, and the Urals. South of them, as far as the shores of the Black Sea, were found mixed tribes of Finns and Tartars. Northwest and north of the Caspian Sea were Tartars and Turks. Finns and Tartars were descended from a common original stock and were kindred to the ancestors of the Magyars or Hungarians and of the Ottoman Turks. The word Russian or Russia was then unknown. But all the history since of an empire—expanding like the tree of Holy Writ, which overspread the earth—



is but the later history of those Slavic bands, planted in the plain and confronted throughout its larger part by the children of the East.

THE BEGINNINGS OF NATIONAL EXISTENCE

History has no drearier, more depressing page than that wherein is written the story of Russia from the tenth to the fifteenth century. Disastrous as were the intermittent foreign wars, still more destructive was the internecine strife in which cities and districts and principalities constantly engaged.

None the less we who look back to those times along the unrolled panorama of a thousand years can trace the energizing, mighty forces which even then were shaping the Slavic nature and the Slavic Empire like plastic clay. A nation is never born except in anguish. The pioneer period of national existence may always be traced, like the march of Washington's army through the snows of New Jersey, by the stains left from bleeding feet. Amidst dissension and fratricidal strife the sense of possible national life was quickening and the goal of national existence was being slowly approached. It was much that the strength of the Finns had been broken; that more than one attack from Lithuanians had been repressed; that on the banks of the Neva Alexander Nevski had won over the Swedes a decisive victory, which the Russian church commemorates with hymns and thanksgiving annually to this day.

Of momentous consequence was the fact that their newly embraced Christianity had come from Constantinople and not from Rome. The other leaders of the Slavic race, the Bohemians and the Poles, had been converted by apostles whose spiritual head was the Pontiff upon the Tiber. The Russian church had found its father in the Patriarch upon the Bosphorus, and its brethren in the adherents of the Eastern Orthodox faith. In coming years, when religion and politics were to be strangely blended, Russia, because of that early and unbroken bond, would be of necessity the sympathetic champion of her coreligionists throughout the East.

But it was most of all under the blows of the Mongol invasions that Russia found her need of union and was hammered into shape. Against the resistless might of overwhelming numbers, the courage and desperate resistance of the Slavs were of no avail. During two hundred and thirty-seven years Mongol conquerors racked the land with their merciless rule. One-half of the country was occupied by their hordes. A portion of the other half was left to the inhabitants, who paid heavy tribute and who, princes and people, acknowledged themselves the humble vassals of the Khan. Poland, favored by the Mongol conquerors, seized the southwestern portion of the plain. Thus Poland was enabled to span Europe from the Baltic to the Black Sea; but her gains were destined to bear bitter fruit. Born from it was that traditional Russian hatred for Poland and all things Polish which future wars were to perpetuate, but could not intensify.

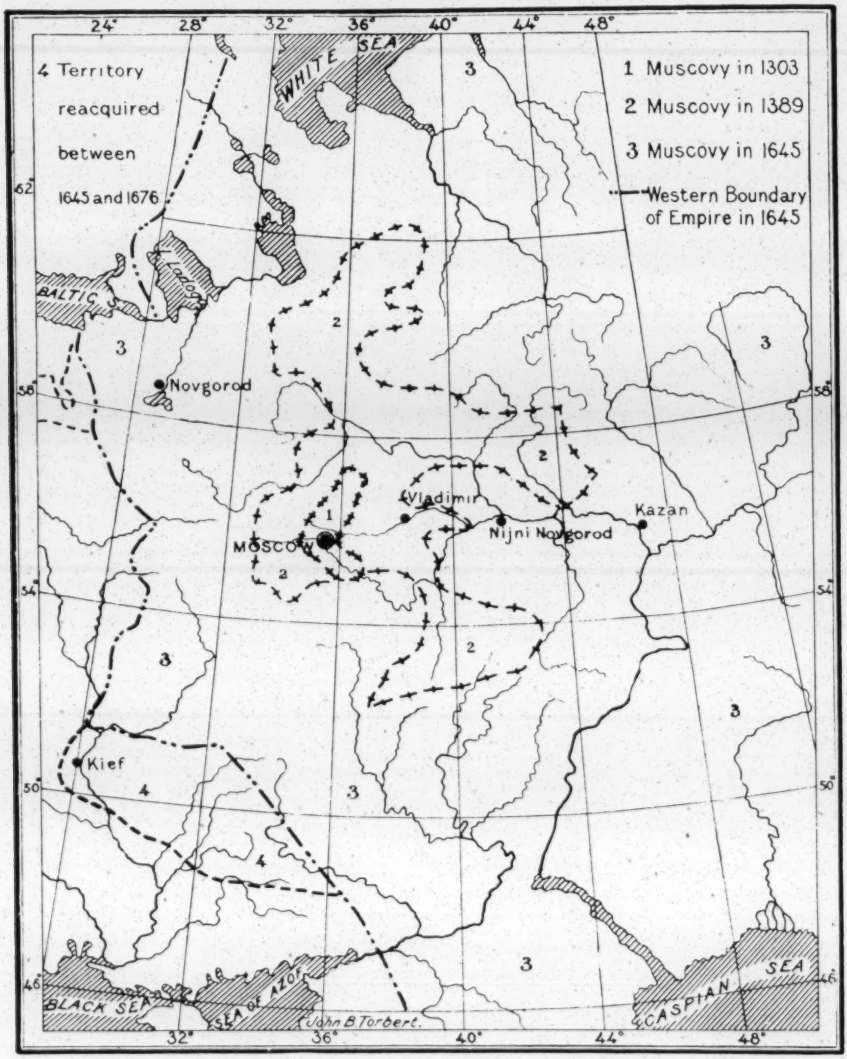
Yet, crushed and mangled, the nation was taking definite form. In the twelfth century a prince, pursuing a defeated rival, had halted

on a pretty elevation which overlooked the River Moskva. The spot pleased his eye. He built there a church and village. Both long remained in almost forgotten obscurity. But the later chroniclers embellish that foundation with as many romantic legends as the Roman writers throw around the building of Rome. The church has since become the Kremlin, unequaled and gorgeous combination of monastery, cathedral, palace, fortress, and imperial mausoleum. The village, taking its name from the river, grew into the metropolis and capital which the Russian peasants with mingled veneration and truth call the "Holy Mother Moscow."

It would be a congenial task to trace how waves of resistance to the Mongols, of conquest over hostile and rival towns, and of widening political influence radiated from this center. It was shown, as M. Rambaud eloquently says, that "the Slavic soul had been confined, not depraved or enslaved, by the Tartar terror, and was only biding its time." Shrewdness, suppleness, and heroism were reasonably combined in the princes of Moscow. Dimitri of Moscow, by a victory over the Mongols upon the Don, proved that the dreaded foreign oppressors were not invincible. Though the Mongol yoke was shortly riveted again, none the less the eyes of the people grew accustomed to looking upon Moscow as their future deliverer. At last it was from Moscow that their deliverance proceeded. On the lips of foreigners Muscovy and Muscovite became the term to denote the entire country and its inhabitants. Even today an Ottoman Turk always speaks of a Russian as a Moscov.

Meanwhile Constantinople and the Byzantine Empire had fallen before the mace of Sultan Mohammed II, the conqueror. The heiress to the shattered empire was the Princess Sophia. When, in 1472, she wedded Ivan III, Grand Duke of Moscow, she brought to him as her imperial dowry her claim to the Byzantine throne. Her husband assumed the title of Czar and adopted as his coat of arms the double-headed eagle of Constantinople. Wherever the Russian escutcheon is now displayed, enwrapped in the ermine and surmounted by the jeweled crown, it is a reminder not only of that historic marriage, but of the definite hope and aspiration of the czars.

In 1598 the Czar Feodor died, and with him the royal house of Russia became extinct. The heir to the throne, the boy Dimitri, had five years before preceded him to the tomb. A crowd of impostors arose, each claiming to be the dead prince. Each pretender drew after him a host of armed partisans, and Russia was given over



GROWTH OF RUSSIA IN EUROPE FROM 1303 TO 1645

to anarchy and civil war. The Swedes invaded the country from the north; the Poles seized the south, captured Moscow, and placed a garrison in the Kremlin. The state, so many years in painful building, seemed already become the permanent spoil of its hered-

itary foes. Then with one spontaneous outburst Russian nationality awoke to life. Priest, noble, tradesman, peasant rose as a single man. From every direction in impetuous companies they pressed toward Moscow. The leaders of the movement were the butcher Minine and the Prince Pojarski. They swept the foreign garrisons and the foreign armies from their path like chaff. The Russian people had rescued Russia.

Then from all over the country delegates were chosen to meet in solemn conclave at Moscow and elect a czar. In no part of Europe had a great popular assembly, equally representative of all interests and classes, ever met to select a nation's ruler. The contentions were long and fierce. At last the delegates agreed in the unanimous choice of Michael Romanoff. No other dynasty reigning in Europe today owes its original existence to the choice of the people in equal degree with the Russian imperial house.

PETER THE GREAT

It is not my purpose to narrate Russian history except wherein that history is synonymous with growth. I wish to contemplate that word growth in its largest and most comprehensive sense, including thereby creation and development of national character no less than increase of national territory. In fact, the former is the more important, is the essential element of the two. The concentric accretions in expanse of area under the Grand Dukes of Moscow and the czars were but the consequence of that character, painfully elaborated by geographic environment and time.

Peter, whom the world rightly honors as the Great, came to the throne in 1689. Thus far the Russian Slavs had fought and suffered and grown strong in almost Oriental seclusion. It was Peter who first compelled them to learn the crafts, study the institutions, and benefit by the manners and appliances of the West. The diplomacy begun by Ivan the Terrible he carried farther, and forced Russia into unwelcome and unwelcomed fellowship with the European states. His ambitions and achievements are too familiar to repeat. His paramount interest to us consists in this, that he was, more than any other Russian ruler had ever been, the incarnate spirit of his people. He, indeed, stood on a higher plane and looked out with a larger vision than had any other Slav before him. Yet in the bedrock of his character he was preëminently a Slav. His two chief natural endowments were a patience that never failed and a persistence that knew no de-

feat. No other people have possessed or now possess these qualities equally with the Russian Slav. Herein was the difference between Peter and Charles XII of Sweden. Charles XII was only an episode in a drama. Peter was a colossus that could not be shaken and remained. Before he was born the Russian people had been fashioned into an efficient weapon ready to his hand. The dormant spirit of a mighty nation had revealed itself in him. On the decisive field of Pultowa, Sweden received a blow from which she has never recovered. St Petersburg, built among the marshes and the forests of the Neva, is the majestic monument of that victory and of his reign. To it the discouraged but venerated Moscow yielded its proud rank as capital. With its erection Russia consecrated the spot where her foot first touched the shores of a western sea.

TERRITORIAL EXPANSION SINCE 1725

The territorial expansion from the death of the Great Czar until the present year can be shown more clearly by the map than by any description in words. The whole added territory on the west and south constitutes a sort of territorial fringe, with an average width of over 200 miles. It extends from the Arctic to the Black Sea, and thence strikes southeastward till it reaches the Caspian.

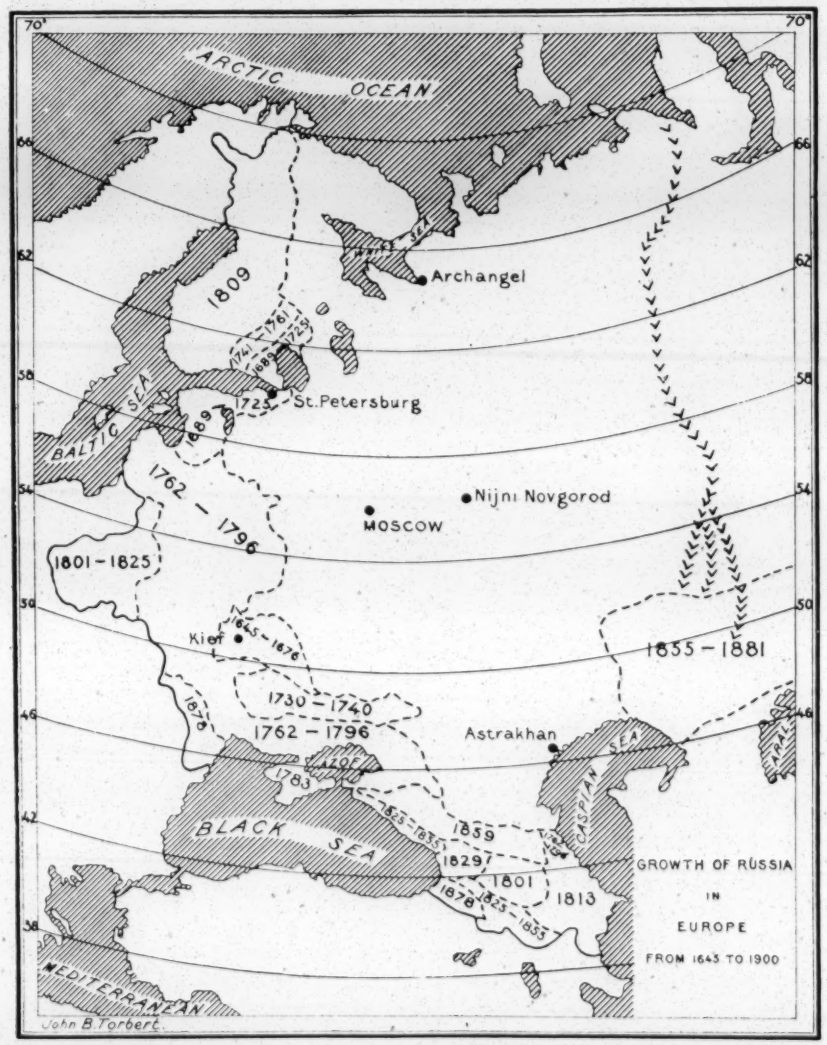
In her extension east Russia pressed on toward the Pacific Ocean, completing the acquisition of Siberia. Whatever claims China possessed to the left bank of the Amur and the right bank of the Usuri were peacefully ceded by her to Russia in 1860. Port Arthur, on the Gulf of Petchili and Talien Wan, were just as peacefully ceded by the same power in 1897 for a nominal term of twenty-five years.

Such territorial extension not only amazes but appals. It does not so impress by its vastness as by its continuance. Ever since Russia, according to the Slavic saying, "found herself," this process has been going on. Were it in consequence of a temporary popular spasm, or of the exceptional tendency of a single reign, the considerations it opens up would be less momentous.

A COMPARISON OF THE ACQUISITIONS OF TERRITORY BY GREAT BRITAIN AND RUSSIA

It is true that the acquisitions of territory by Great Britain during the last century have been on an even more stupendous scale. Since 1870 Great Britain has annexed to her empire 2,854,170 square miles of territory and 125,000,000 human beings. Yet, though Great Britain

in less than a generation has added to herself an area larger by 800,000 square miles than Russia in Europe, and a population almost as great as that of the entire Russian empire, her annexations do not equally disturb the political equilibrium of the world. Though politically connected with her and dependent upon her, they do not feel themselves an integral part of her. The East Indian, the Cypriote, the



Egyptian never can be a Briton or an Englishman. Except so far as the inhabitants of annexed territory are natives of Britain or descendants of British stock, they increase her danger rather than contribute to her strength. The French of Canada, who have been subject to the British scepter one hundred and forty years, may be cited as an exception to this statement. Though carrying law and order with him, the Englishman does not possess and almost despises the faculty of assimilating a conquered people and identifying them with himself. From them he dare recruit but a small number for his armies, and only with the most solicitous precaution. That small number he must keep in positions of safe inferiority.

Russia, unlike Great Britain, makes no acquisitions which do not border on her own soil. Only such territory as is adjacent or will speedily become adjacent does she annex. To the United States she willingly disposes of Alaska, which the accident of discovery had placed under her flag. To Japan she cedes the Kurile Islands for land nearer home. But territory once hers is completely incorporated in her empire for weal or woe. Once within the iron grip of her iron hand, there is no escape for Tartar or Cossack or Kalmuck or Pole or Finn from ultimate identification with the Russian. From the conquered she forms battalions and regiments and brigades, and stimulates their fidelity and fires their ambition with important commands. Whole army corps she entrusts in time of war to the Armenians Melikoff and Der Hougassoff and to Alikhanoff, the Turkoman. Beneath her sway there is a uniformity of service and subjection like the uniformity of the plain that has reflected itself in Russian nature. For years the acquiescence may be forced, but one generation passes away and another comes that is profoundly Russian except in remote ancestry.

Moreover, there is a marvelous assimilating faculty in the Slav. The Greco-Latin never possessed it, nor does the Celt or the Teuton now. In preëminent degree is the Slav endowed with the genius of emigration and colonization. There is a rough picture, frequently seen, of the Russian emigrant. His axe fastened to his belt, his boots with prudent economy hanging from his shoulders by a cord, his fingers bent in the sign of the cross, his face looking straight before him, he stolidly steps on to the beyond. Herein is the significance of each Russian annexation. It augments the strength which has produced it.

There is another essential difference to be noted in the relations of

Russia's dependencies and those of Great Britain with other nations. I mention Great Britain because out of all the powers of the eastern hemisphere she alone in magnitude and strength can be weighed in the same scale with Russia. Russia's gains touch the borders or affect the direct interests of few European states. She may arouse their jealousy or fear, because she casts so stupendous a shadow upon the world-map, but she seldom comes into perplexing or irritating connection with them. She is not near at hand to excite their suspicion, endanger their welfare, or humiliate their pride. Wherever there is a British possession it must impinge upon or wound the susceptibilities of somebody else. Hence arises an infinity of possible complications and troubles which only long-suffering tact and sorely strained compromise can adjust. But Russia's fingers touch neither North nor South America, Africa nor Oceanica—that is, throughout one of the hemispheres and by far the largest portion of the other nowhere does her tread threaten to trample on another's feet.

RUSSIA'S INACCESSIBILITY BY SEA

In nothing is the contrast greater between eastern and western Europe than in their accessibility by sea. Russian territory comprises about eleven-twentieths of Europe, and the non-Russian territory, shared by nineteen states, the remaining nine-twentieths. The nine-twentieths have a coast line of over 15,000 miles. The eleven-twentieths have a coast line of less than 5,000 miles, 2,400 miles of which extend along the inhospitable and frozen shores of the Arctic Ocean and White Sea. The remaining 2,600 miles nowhere touch the ocean or any of its immediate waters. They border only on three inland, almost land-locked seas—the Baltic, the Black Sea, and the Caspian. The White Sea and the Arctic Ocean are navigable only from June to September, about four months each year. The eastern Baltic is commonly shut to navigation from the end of November to April. The Caspian is an Asiatic lake, connecting with no other water. The Black Sea is shut in by European diplomacy to the navies of Russia. Not a fishing smack can descend the Bosphorus without the special permit of the government of the Sultan.

The rest of the European world looks out upon—accessible at its door—the chief maritime highways of mankind, the North Sea, the Atlantic Ocean, and the Mediterranean. Russia, with her swelling population, her tremendous area, and her enormous products, does not touch upon those highways at any point. What the Mississippi

basin was to the adventurous pioneers beyond the Alleghanies, what it now is to all the opulence and enterprise of the imperial center of our nation, that nature designed from all eternity the current of the Bosphorus should be to the inhabitants of that northern plain. For that natural outlet the Russian nation waits with the assurance of the patient and strong.

THE INFLUENCE OF RUSSIA AS THE HEAD OF THE ORTHODOX CHURCH

The foreigner can hardly appreciate the peculiar influence accruing to Russia in Eastern Europe from the relations which she sustains as the political head of the eastern Orthodox Church. During the "Age of Woe" she was herself the victim of Mussulman Mongols. What she suffered then is still handed down by countless traditions and is burned into the national memory. Western Europe, even in Spain, has never experienced such horror and terror at the hands of Islam. Hated as oppressors, the Mongols were abhorred as infidels. When at last the Russian broke his chains his thanksgiving was for a double victory. Orthodox Christianity had triumphed over Islam and the natives of the soil had triumphed over the invader. Russia stood forth as the victorious champion of her faith. Under the Ottoman Turk, in a later and less barbarous age, she saw repeated among her coreligionists something of that treatment she had herself experienced at Mussulman hands. In the East the tie of a common faith is strong. To her, as to no other human power, the subject Christians of the Balkan Peninsula generation after generation ever stretched their supplicating hands.

On the part of the Russian people rather than of the Russian government there was always present for the members of their common church an intense sympathy, of which state policy might take advantage, but which it could not wholly check or restrain. The Russian peasant calls a war with the Moslem "God's battle." In 1877 the sympathies of the common people for Bulgaria forced the government into a war, of which neither the Czar Alexander II nor his chancellor, Gortchakoff, approved. There is a burying place in Constantinople where more than three hundred Russian soldiers rest in a common grave. Taken prisoners, they died in captivity during the war of 1828–'29, which Russia waged for the freedom of Greece. The epitaph on the white marble describes the manner of their death and closes with the verse, "Greater love hath no man than this, that he lay down his life for his friends." To Russia Roumania, Servia,

Montenegro, and Bulgaria owe their quasi-independence. How far selfish motives have controlled her action they can not tell, but of one thing they are sure—it is, that Russia has fought for them, and that no other European nation ever expended anything but words in their behalf. Despite intrigues from abroad and petty ambitions and jealousies at home, the coöperation of the Balkan States is assured to Russia.

RUSSIA'S INFLUENCE IN ASIA

Russia's larger and more recent conquests have been in Asia. Confronted for centuries by Orientals, both along her borders and upon her soil, she understands the Oriental to the core. Among these wild and lawless peoples, explosive as gunpowder, the torch of civilization can be carried only with a firm and steady hand. Asia has never voted except with swords. The sword is the only ballot which the continental Asiatic respects or comprehends. In that vast region, wherever her rule has gone, it has been equally vigorous and beneficent. From the Bosphorus to China there is an awe of Russia such as no other power on earth can inspire.

THE DESTINY OF RUSSIA

But it is not in broadening territorial extent or teeming numbers, not in world-wide prestige or disciplined armies, that a nation must confide. The throne of Napoleon III was falling months before he declared war against Prussia and set out on his journey to Sedan. The foundation stone of national existence and national greatness is the spirit of a people.

In the peculiar character of her common people is Russia's abiding strength. Tenacious, docile, imitative, but not inventive; receptive, but not constructive; profoundly religious, as he understands religion; submissive to what he considers the will of God and the Czar, the Russian has remained unchanged through all these changing years. Said Grodzitski in the tower of Kudak when surrounded by his foes: "I am commanded to stay here, I stay; commanded to watch, I watch; commanded to be defiant, I am defiant; and if it comes to dying, since my mother gave me birth, I shall know how to die, too."

There were only 12,000,000 Russians when Peter, at the beginning of the last century, crushed the might of Sweden at Pultowa. There were only 28,000,000 when Catharine II signed the first treaty be-

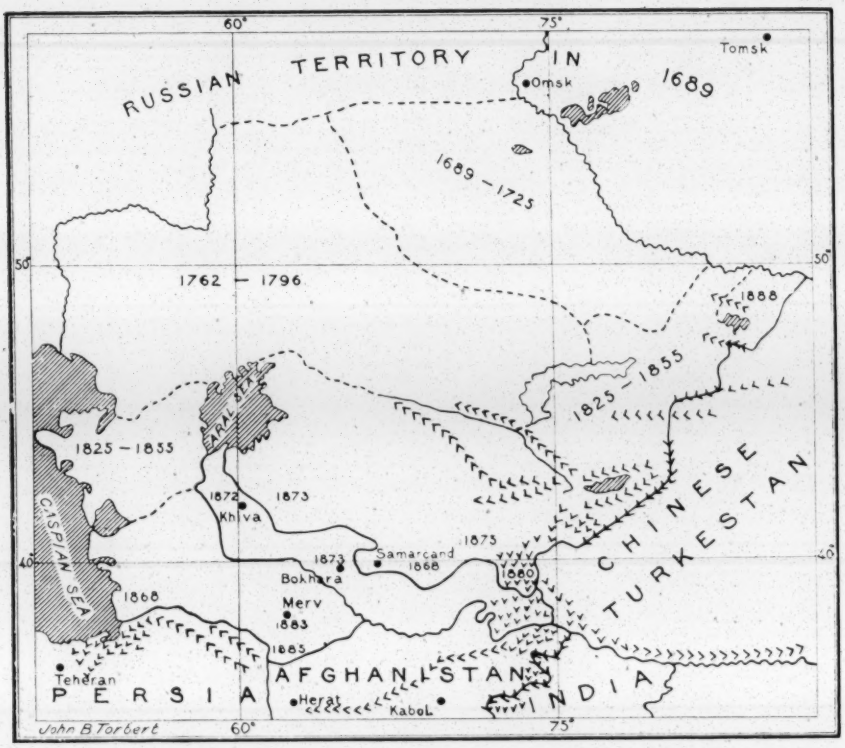


DIAGRAM SHOWING SUCCESSIVE ADVANCES OF RUSSIA TOWARD INDIA

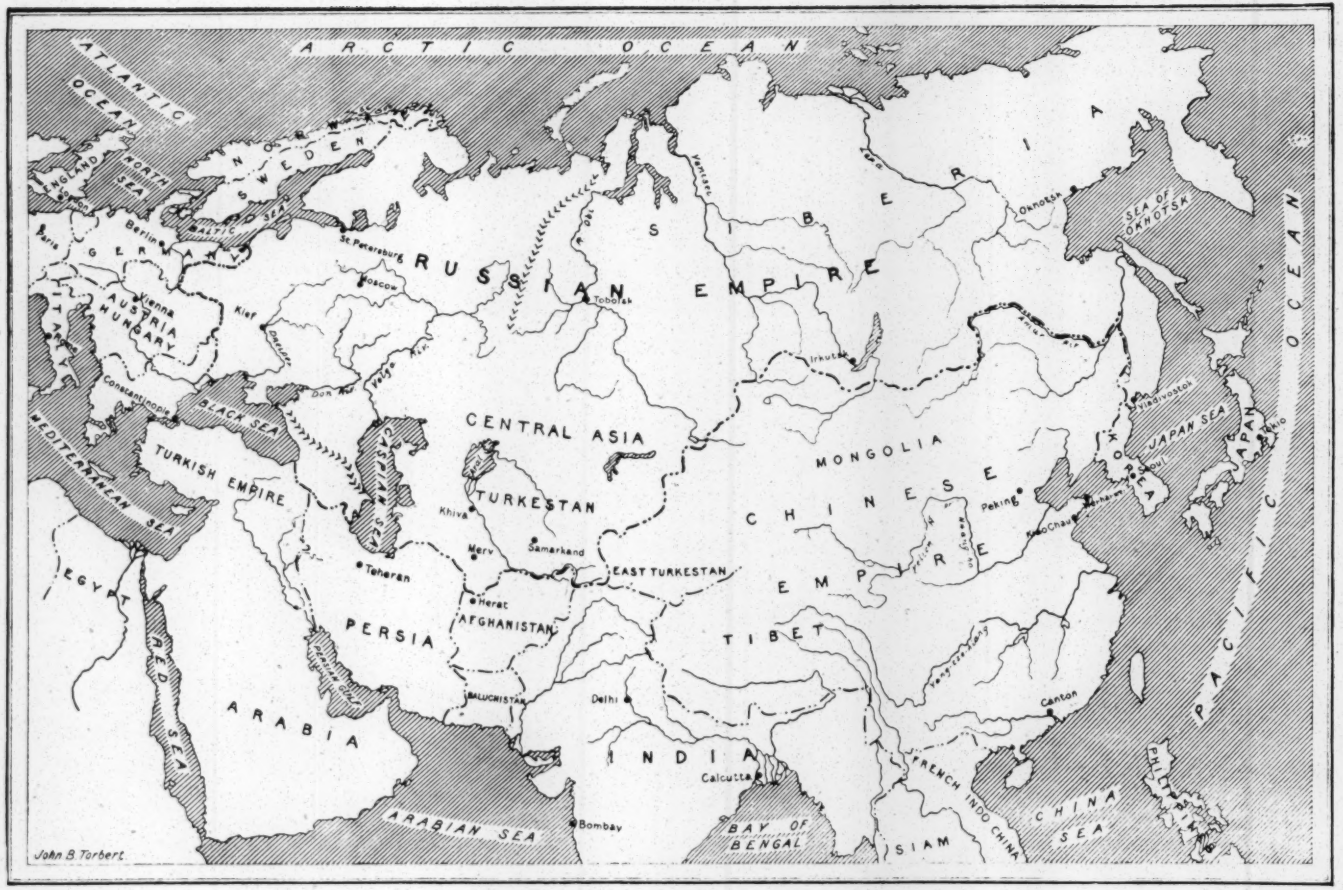
tween Russia and the United States. There were only 45,000,000 when, during the reign of Alexander I, Napoleon the Great began his march to Moscow. There were 68,000,000 when, during the Crimean war, Nicholas I withstood the combined strength of Sardinia, Turkey, Great Britain, and France. There are 130,000,000 today. According to the natural law of increase, there will be 250,000,000 during the lifetime of many who read these words. Doubtless before that not-far-distant period arrives the map of the world will show many changes. States now existing will disappear and new states may be born and write their names upon the chart. In Russia, indissoluble on her plain and virile in her strength, there is no symptom of decay. While thrones topple and old names vanish, Russia remains. The perpetuity of the American Republic is not more sure.

Russia has been preparing for a thousand years and is still preparing for her destiny. The present in all its magnificence of endeavor

and achievement is but the guarantee of a far grander future. It would be a congenial task to linger upon great national enterprises begun and fast pushing to completion. Above the quicksands of Turkestan and through the wastes of Siberia to the Eastern Ocean Russia is constructing her solid iron roads. Over the face of her prodigious European plain she is marking out the paths of the canals on which from sea to sea navies will ride. Siberia, the old-time synonym of desolation and solitude, is inviting the activity of the colonist, whether farmer, miner, or engineer. Korea and the provinces of dormant or disintegrating China await their share in the world's life from the electric impulse of her northern brain. That brain is to nerve Asia, long outworn, to a resurrection as from the dead. What the warrior monk Elias uttered long ago receives confirmation every passing year: "The progress of Russia is mysterious and profound. Before she moves she neither betrays her plan nor hesitates nor boasts, but none can hinder her arriving where she has set her will."

Not long ago I received a letter from a Bulgarian friend, a leading member of the Sobranie, or Bulgarian Chamber of Deputies. He uses these words: "In the near or distant future I see only two prominent nations—the United States in the west, and Russia owning nearly the whole of Asia and exercising a preponderant influence over the European continent. The whole of the Balkan peninsula, Asia Minor, Persia, Central Asia are her natural and inevitable inheritance. Above Asia and Europe I see the White Czar of Holy Russia. Your people need have no concern. The interests of Russia and the United States nowhere conflict. Naturally they are friends and allies. Together they are to regenerate the world." Thus the Bulgarian statesman utters his own conviction and the great political credo of the Slav.

The one necessity and the chief ally of Russia is time. How far the peace manifesto of Nicholas II was prompted by philanthropy or by profound but selfish statecraft it is impossible to know. If philanthropy, that manifesto remains the noblest and most memorable document ever issued by a Christian monarch; if political sagacity, that manifesto is in appreciation of the future the astutest utterance ever made by the occupant of a Russian throne. But it is unbecoming to question the hidden motives of a deed in itself sublime. History will record no more than this: that at the close of a century more crowded with bloodshed and war than any other since time began, Russia through the voice of her autocratic Czar put forth a plea to all mankind in favor of universal brotherhood and peace.



THE RUSSIAN EMPIRE IN ITS GEOGRAPHICAL RELATION TO EUROPE AND ASIA

INFLUENCE OF GEOGRAPHICAL CONDITIONS ON MILITARY OPERATIONS IN SOUTH AFRICA

By Major W. A. Simpson, U. S. A.,

Assistant Adjutant General and Chief of the Military Information Division, U. S. War Department

In all military operations the character of the terrain exercises a very important influence. All great generals have understood and utilized this fact. A knowledge of the geographic character of the country is necessary to an understanding of a campaign.

The principal watershed of South Africa is the Drakensberg Range. It extends generally in a northeasterly and southwesterly direction, nearly parallel to the coast line of the Indian Ocean, and at an average distance from it of about 200 miles. Along the Indian Ocean there is a belt of low land. Going inland the ground rises in a series of irregular terraces, until the highest altitude is reached in the crest of the Drakensberg, some of whose peaks are over 10,000 feet high. The western slopes of the Drakensberg are much more gentle than those on the eastern side, and the ground falls away gradually into the great central plateau, of which the South African Republic and the Orange Free State form the principal part. In this respect the Drakensberg Range is comparable to our Rocky Mountains, the ground rising gradually going west from the Mississippi Valley, and descending more abruptly from the crest to the west. In the southern part of the South African Republic runs, east and west, the Witwatersrand, or the Rand, as it is commonly called. This forms a secondary watershed. The rivers to the north flow into the Limpopo, which is the northern boundary of the South African Republic, while those to the south flow into the Vaal.

Although it has been stated that the ground rises from the Indian Ocean in a series of terraces, it is not intended to convey the idea that these terraces are level. The term terrace is used simply to convey the idea of a belt of nearly uniform *average* elevation. As a matter of fact, the country in Natal (this does not embrace all the territory east of the mountains, but it is all that it is necessary for us to consider) is very much broken. There are many streams which, rising

in the Drakensberg, flow toward the Indian Ocean. As they fall thousands of feet in a comparatively short horizontal distance, they are naturally characterized by many waterfalls and rapids. The country is seamed with ravines, which grow narrower and whose sides become steeper as the mountains are approached. There are many hills, some nearly circular in shape, others in the form of ridges, whose sides are generally steep and strewn with boulders.

In the central plateau, which is lowest near its western border, the country generally appears level, but hills rise abruptly from the plain, with sides in many cases so steep and rough that it is difficult to get guns up even when the hills are undefended.

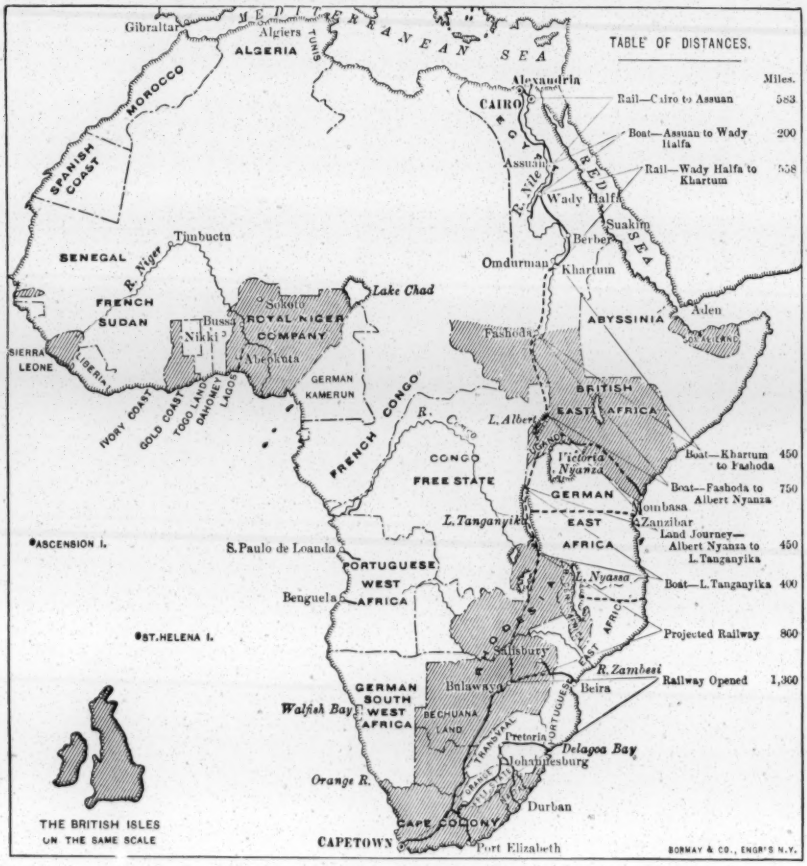
The rivers, after heavy rains, become swollen, and in the dry season have but little water, and at times none at all. They generally run through gullies considerably below the level of the banks, and this makes them difficult to cross. They are useless for purposes of navigation and merely serve as obstacles.

The rain winds come principally from the Indian Ocean, and as the Drakensberg cuts off the moisture, it is much drier west of that range than east of it. The average yearly rainfall at Durban is over 39 inches, while at Bloemfontein it is only about 21. The rainy season is in the summer, which corresponds in time to our winter.

The South African Republic and the Orange Free State are very sparsely settled, and the principal occupation is cattle-raising. In the rainy season grazing is good on the veldt. In the dry season the grass dries up and the cattlemen have to move their stock from place to place in search of water. The country is generally somewhat barren, and, except in the southeastern part of the Orange Free State, in the country around Wepener, not much attention is given to agriculture.

THE NECESSITY OF RAILWAYS

South Africa is largely dependent upon railroads for transportation. All countries are, of course; but South Africa, on account of absence of good roads and navigable streams, is particularly so. The present Cape Colony system of railroads is divided into four sections—the western, northern, midland, and eastern. The western starts at Cape Town and extends to De Aar, 501 miles. At De Aar the northern section begins, and extends through Kimberley and along the western border of the Orange Free State to Vryburg. At the latter place the Rhodesia road begins, running on through



RAILWAYS IN SOUTH AFRICA

By courtesy of *The Engineering Magazine*

Mafeking to its present northern terminus, Bulawayo, 1,360 miles from Cape Town. The midland section consists of a line from Port Elizabeth (with a short branch from Port Alfred) to Norvals Pont, on the Orange River, where it connects with the Orange Free State line running north to Bloemfontein, and on through Johannesburg to Pretoria. This road runs through the heart of the Boer Republics. The eastern section runs from East London to Aliwal North, near the Orange River. The western and midland sections are connected by a line from De Aar, on the former, to Naauwpoort, on the latter;

the midland and eastern by a line from Rosmead Junction, on the former, to Stormberg Junction, on the latter. The eastern section is also connected with the Orange Free State line by a branch running from Albert Junction to Springfontein, a short distance from the Orange River, in the Orange Free State. It crosses the river at Bethulie Bridge. These roads have numerous branches in Cape Colony, so that the British are fairly well supplied with railroads south of the Orange River, but the Orange Free State line beyond Springfontein is the only line running north through Boer territory. The distance from Cape Town to Bloemfontein is 750 miles, while from Port Elizabeth to Bloemfontein it is 300 miles less.

There is a railroad running from Durban, on the Indian Ocean, in a general northwesterly direction. At Ladysmith it branches, one branch going northwest from Ladysmith through the mountains into the Orange Free State; the other branch runs north from Ladysmith through the apex from Natal, then turns to the northwest and goes to Johannesburg and Pretoria. By this line Ladysmith is 180 miles from Durban, and Pretoria is 511 miles.

Still farther to the north a railroad runs from Delagoa Bay in a westerly direction to Pretoria. This road runs through Portuguese territory, and is the only means of access to the sea from Boer territory. It will thus be seen that one system of roads gives transportation from the south to the Boer country, while the other at Durban gives it to the northwest. There is no communication between these systems, and troops and supplies for Natal must be landed at Durban.

THE RAILROAD FROM BEIRA

The permission recently given to England by Portugal to transfer troops through Portuguese territory has directed attention to a line of which very little is generally known. This line starts from Beira, a port on the Indian Ocean about 850 miles north along the coast from Durban, and extends in a general northwesterly direction *via* Umtali to Salisbury. Here the road ends. If the troops sent by this route are intended as an expedition for the relief of Mafeking, it will be some time before they can reach it, as they will have a march of about 300 miles over the country to Bulawayo, the present northern terminus of the Rhodesian railway. This expedition can hardly have any other object, as Salisbury is about 300 miles north of the northern border of the Transvaal and about 600 miles north of Pretoria, and no part of this distance is covered by railroads.

The Boer Republics form an irregular oval. The major axis, nearly parallel to the coast line of the Indian Ocean, is about 440 miles, and its minor axis, represented by a straight line from Mafeking to the apex of Natal, is about 290 miles. The eastern frontier of the South African Republic abuts on Portuguese territory. With this exception, the Boer Republics are entirely surrounded by British colonies.

MILITARY OPERATIONS IN NATAL

The geographical situation of Natal peculiarly favors the Boers. The northern part forms almost an equilateral triangle. The northwestern side is the Orange Free State boundary, the northeastern that of the South African Republic. In anticipation of war the various Boer commanders had assembled at various convenient points along the frontier, and, the morning after their ultimatum expired, made their entry in several different columns into British territory. To prevent the cutting off of the British forces in northern Natal and to effect a concentration at Ladysmith, the British were obliged to attack the Boers, who, on the offensive strategically, were on the defensive tactically, with great advantage to themselves. The actions of Glencoe, Elandslaagte, and Rietfontein were fought, and the net result of this series of movements was the cutting off of Sir George White's army and the investment of Ladysmith. The selection of this place was probably made as it is a railway junction and large quantities of supplies had been collected there. From a military point of view, it had little else to recommend it. Though at an altitude of about 3,300 feet, it lies relatively in a basin, being commanded by higher ground on all sides, notably by Lombard's Kop, a little north of east, and Isimbulwana to the southeast, both within range of the guns mounted there by the Boers.

The subsequent operations in Natal due to Buller's advance to the relief of Ladysmith were also greatly influenced by the topographical features. The line of advance was, under the conditions existing, necessarily restricted to the railroad running north to Ladysmith. None knew this better than the Boers, and they took full advantage of their knowledge. Good defensive positions abounded, and they could be prepared in advance. If the Boers were driven back from one, after inflicting much greater loss than they themselves suffered, they had another good position a little in the rear. When Spion Kop was taken by the British after hard fighting, it was thought by the officer in command on the ground untenable on account of the

positions held by the Boers just beyond, and he ordered its abandonment, though this withdrawal was afterward adversely criticised by Lord Roberts. If the British tried to make a flank movement, they found the Boers too quick for them, and instead of a flank attack they found themselves making a frontal one.

So it will be seen that, due to the natural features, Natal is an extremely difficult country for offensive military movements. It is open to question whether, had not a part of the Boer forces been withdrawn to meet Lord Roberts' advance in the Orange Free State, Buller would have been able to relieve Ladysmith at all.

MILITARY OPERATIONS IN THE ORANGE FREE STATE

In the western part of the theater of operations the ground is principally open veldt, but kopjes and ridges are found here and there affording excellent positions, as was shown in the operations of Lord Methuen's column for the relief of Kimberley. Here again the line of advance was confined to the railroad, and Methuen felt obliged to attack the Boers in the position of Magersfontein, just to the east of the railroad. He was defeated with great loss, retired to the Modder River, and no farther advance on that line was made until Lord Roberts' flank movement compelled the Boers to withdraw from their position at Magersfontein and raise the siege of Kimberley.

There is very little timber in the Boer Republics, and what there is is found principally along the watercourses. As has been stated, many of the streams run through gullies, with steep banks, and when the rivers run dry a wide boulder-strewn ravine is left. It was in such a place that the Boers prepared their ambush recently for a part of Broadwood's command on its march westward from Thabanchu. With proper precautions on the part of the British this surprise would not have taken place; but it is nevertheless a successful utilization on the part of the Boers of the natural features of the ground in a military operation.

To conduct a successful campaign in the Boer territory without heavy losses the British must be able to operate away from the railroad in strong force, and to do this they must have an immense amount of transportation. The country supplies nothing. Everything in the way of supplies must be brought up from the coast. The movement of Lord Roberts, culminating in the capture of Bloemfontein, was very successful, but he spent a long time after his arrival in South Africa before he was prepared to make it. It is estimated

that in this short campaign his loss in animals—cavalry, artillery, and transport—was not less than 10,000. His recent apparent inaction at Bloemfontein has been due to the necessity of making this loss good—remounting his cavalry and artillery and reorganizing his transportation. At present writing it looks as if his preparations were completed, and that important movements may be soon expected.

In addition to the difficulties the British have to contend with in South Africa, there are the cost and delay in sending troops and supplies a long distance by sea. In the matter of horses and mules the home market cannot supply the demand, and large numbers have been purchased in this country for shipment to South Africa.

Another advantage that the Boers have to a remarkable degree, due to geographical conditions and the systems of transportation, is the ability to move on interior lines. Controlling the Natal railroad west and north of Ladysmith, they can move troops from Natal entirely by rail *via* Pretoria to the vicinity of Bloemfontein, or can move them *via* Van Reenan's Pass into the Orange Free State. They can thus with little difficulty concentrate their forces in any part of the theater of operations. In moving troops from the eastern theater of operations to the western, the British, on the other hand, have to take a circuitous route. After the relief of Ladysmith troops were detached from Buller's army and sent to join Roberts. This involved a journey by rail to Durban, loading on transports at Durban, a voyage down the coast, disembarkation at a Cape Colony port, and transfer by rail to the Orange River and beyond.

APPERCEPTION IN GEOGRAPHY

By M. E. Kelton

The application of the inductive method to the various subjects of the school curriculum is encouraging many teachers to undertake a more systematic treatment of geography. In order to help the child to understand what distant lands are, we must store his mind with concepts based upon frequent observations of his own home and its surroundings. For this reason instruction in geography should be based upon the law of apperception. The relation of man to the earth gives wide scope for the study of the causes and effects of their

interaction. By this same inductive method the child is led to work out results for himself, and the subject that was once treated as a memory drill is made to hold its true place in training the reasoning faculties.

In studying the relation of man to the earth three main topics must be considered—the crust of the earth, its fluid and gaseous envelopes, and the forms of life conditioned by the crust and its envelopes.

Because geology, biology, and meteorology are the basis of induction in geography, nature study should precede and form the correlative of geography in the early years of the school curriculum. In these first school days the child works with symbols of language and number. His chief aim is to learn to read. If he reads something in which he is interested the task will be easy. For this reason nature study is made the basis of the reading lesson; and, since nature study is the background of geography, the child is led to such facts as will be of use later in developing the geographic story.

Daily observation of weather teaches relation of winds to cloud and rain. The length of day recorded and compared in different months finally brings a comprehension of the conditions dependent upon revolution, and leads to a final knowledge of and belief in revolution itself. These ideas are strengthened by observing and recording the position of the sun in the sky at morning, at noon, and at evening during the different months. The shadow-stick is presented in the first year. A large nail fastened perpendicularly in a board or a pointer driven into a level path makes a good shadow-stick. Each day's record is marked upon a sheet of paper lying on the board or under the stick, and these records can be brought to class for study. By comparing the results of such observations the principles of mathematical geography gradually become concepts upon which the child can base his further reasoning in geography. Thus he is led to inquire why the noon shadow in June is shorter than the noon shadow in December, and to observe the gradual change in its length.

These simple lessons in mathematical geography are further considered in the reading lesson, where they are illumined by the myth which belongs to the early days of literature; but the myth means much more if associated with a reality. Hence the wind myths and sun myths are read when recording the observations of wind and sun, and the myths of cloud and rain when these phenomena of climate are observed.

Following these observations of climate comes the relation of ani-

mal life to these conditions. In one year's changes the climate of the different zones is fairly represented.

The preparation of plant and animal life for the seasons, the relation of animal to plant, and of man to each is further treated in the nature lesson, such observations being made as will form the basis of the reading lesson that shall follow.

The study of drainage follows the observation of rain. The knowledge of the work of the streams is based upon the observations made during the rain-storm. These ideas may be gained from a field lesson on a railroad cut or excavation in the neighboring hill country. These field lessons are supplemented by careful study of types of rivers and mountains from maps and pictures.

The life in each section visited on the excursions is compared with the conditions of home. In these lessons the land forms are taught, and man's need of clothing, food, and shelter suggests occupations of people. From this study of the organization of human endeavor arises the understanding of the growth of town and city and of the need of government. At this point the story of "Robinson Crusoe" is a valuable and interesting aid as a reading lesson.

During the two years in which nature work is the basis for the reading lesson ideas are developed which are to be utilized by the true geography teaching that belongs to the course of study in the third year. The main difficulty is to arrange the study to meet the capability of the pupil. Our own adult notions in geography are largely gained from maps, which we enlarge by means of acquired concepts. Why not teach geography by this method? Experience has taught that the study of a lesson from the text is mechanical and void of the desired effect to the majority of the pupils. Now, the search for facts from the map creates interest, and the recording of such facts stimulates thought and furnishes material for the recitation that follows. The reading of the text book in a later recitation illuminates the ideas that have been gained by the individual efforts of pupils.

In the end the written lesson will be the compilation of such facts as have been gained through individual investigation. The answers to carefully prepared questions will appear in the note books of the class as an original geography text book that has grown out of the actual observation and reasoning of the pupils.

The Excursion.—As the neighborhood furnishes the fundamental concepts upon which we build, it follows that the first lessons must establish the common body of facts by simultaneous observation.

In a Brooklyn school the excursion and field lesson precede the work on the map. The city is the unit upon which we begin our course of reasoning. By means of concepts obtained from observations of home surroundings we are to gain the ideas of conditions that have developed other great centers of population. In New York we have before us a great commercial as well as a great manufacturing center. Upon these two conditions depends the dense population of Manhattan Island and the surrounding country.

Density of Population.—An afternoon excursion across the bay on a boat of the Brooklyn annex furnishes the facts to be considered in connection with the map of density of population. The island of Manhattan, with its miles of water front, and the several cities grouped about the waters of bay, river, and strait are noted. The signs on the piers and the flags on the ships show the extent of the commerce. Beside the commercial advantages of New York, the conditions of manufacturing are also considered to obtain a proper understanding of the density of population in manufacturing towns. For this purpose we select a shoe factory, where the different parts of the article are being worked upon by many people. The manager tells us how many hands he employs. These facts are afterward considered in a conversational lesson, where attention is directed to the many families dependent upon this factory and to the needs of each individual thereof.

Physical Features.—Another excursion up the Hudson to the Palisades helps to explain the dependence of density upon the physiographical features.

The only text book used is Longman's School Atlas. The home lessons following the excursions are based upon map 16 of that atlas, entitled "Density of Population in United States." The pupils find the density in southeastern New York and note other localities having similar density. They compare the situation of such places with that of New York City, using map 11 for a better understanding of the physical features. Then they find on map 16 regions having a low density of population and note their physical conditions.

Composition.—A composition on population based upon the facts gathered on the excursion and from the map is next prepared with much careful attention and is preserved in the pupil's note book. This may be illustrated by pictures collected by the children to show conditions of life accompanying the different degrees of density. A map colored to show region of greatest and least density further emphasizes the lessons and completes the subject.

Climate.—Lessons upon climate, with experiments and map study, follow. The rain gauge is observed and a record of the rainfall is made to show how the annual amount of moisture is determined. Such observations are accompanied by others on wind, temperature, and the appearance of the sky. After the pupils have become familiar with such facts as these observations furnish, they extend the bounds of their knowledge by the study of climatic maps.

Rainfall.—On the rainfall map, number 15, the pupils find the annual precipitation about New York City and select other regions having the same amount. By the aid of map 11 a list of cities in these regions is made; also the density of population in each region is compared with that about New York City. Regions having less rain than New York and those having more are compared with New York as to density of population.

Temperature.—The use of the thermometer is taught before the map of isotherms is presented. The symbols on the United States weather map are used to record the observations, and this map is understood before the work on the atlas map is given. After gaining these facts, a further comparison is made of places differing in density of population, and reasons for the varying density are deduced from the climate and surface of each region.

Vegetation.—A visit to Washington Park furnishes the first common ideas of vegetation. Satisfactory types of forest, prairie, desert, and marsh are all to be found there, and here also the conifer of the cold climate, the palms of the tropics, and deciduous trees of the temperate regions have each a representative.

In the subsequent lessons on vegetation the pupils use map number 7, and make lists of the kinds of vegetation found in North America. They color an outline map of North America to represent the vegetation regions. From other maps of the atlas the pupils discover and record temperature, winds, rainfall, physical features, and density of population in each region of vegetation.

The first work, then, in map reading is associated with the previous field lesson or experiment. Since the maps and plates of the atlas are the medium through which the geographical facts of continents and political divisions are to be gained by pupils, our first work in geography, as outlined above, is an introduction to these symbols. In this connection I wish to acknowledge the valuable suggestions I have received from the teachers' edition of Leete's Exercises in Geography, a little book containing exhaustive material for such map studies.

The work of induction is further pursued by means of wall maps and pictures. The pilot charts recently distributed by the U. S. Coast and Geodetic Survey of Washington have aided the study of coasts. By means of these a comparison of the Atlantic and Pacific coasts has been more definitely considered. This has been followed by a deduction of the facts affecting the conditions of life dependent upon each. Such facts are again referred to in connection with coasts of other continents.

Geology.—The geologic map, number 14 of Longman's Atlas, is introduced after an excursion to the beach at Coney Island. On this trip we consider the aqueous deposit of the shore and the surrounding topography. On another excursion a cut in the road furnishes ideas of glacial deposits, and stereopticon pictures afterward supplement the results of direct observation. By means of the geologic map the pupils are able to distinguish the varying formations found in the Atlantic plain. The rocky coast of the north with its phenomena is contrasted with the life and formations of the sandy coasts.

Other Continents.—A thorough acquaintance with home geography paves the way for work upon the continents. The idea of distance is continually brought out in the map study. By means of the scale of miles the extent and area of regions are measured. These ideas are made clear by comparison with distances actually traveled. Hirt's pictures, a German publication, carefully prepared, show life and customs in the geographic regions of the earth. By questioning on these pictures the pupils are led to discover many facts. When the text-book is presented at the end, to review the facts already gained, the pupils read with interest.

Opportunity for Invention.—The great flexibility of the atlas work is apparent whenever an attempt is made to arrange the map lesson to meet a different set of facts. Thus, in order to emphasize the dependence of climate upon topography in the study of Eurasia, the east and west trend of the highland area is noted and the climatic maps used to discover why vegetation and density of population differ from these in the same latitude of the western hemisphere. Here the pupil finds a new factor influencing climate and conditions of life. Again, special sections are compared by exercises that bring together facts regarding their climate and life. The ideas of life on the floodplain of the Po are gained from atlas maps and by comparison with the work of a previous year upon the flooded area of the

Mississippi. The map shows the sand bars, swamps, and lagoon at the delta, where the continental shelf is also apparent. Such a region had been seen in miniature on the Coney Island beach. The cities of Ravenna and Adria, indicated as small towns in the midst of swamps, stimulate the pupils to deduce reasons for the scanty population as well as for the present location. The situations of towns on the banks of the upper Po are contrasted with that of those of the lower Po located a few miles from the river banks. Pictures showing dikes on the lower river are presented and similar conditions on the Mississippi are recalled. The malarial districts and rice-fields shown on the map of Italy are facts upon which the ideas of climate, vegetation, and occupation are based. The railroads are then located on the atlas map and made to furnish data upon which are based the reasons for the density of population and the growth of towns and cities. The passes in the Alps, the opening on the eastern frontier, and the geographical position of Italy are all means by which are deduced facts concerning the various invasions of Italy and the subsequent history of the Italian people. The plate of Races and Religions (map 8) are presented in this history work.

Home Study.—By continually searching for facts the individual mind is stimulated and pleasure is derived from the work. It is the only method I have found to reach the individual in his home study. Each week papers of questions are presented to the pupils. The answers are to be found in the maps and plates of the atlas. The ideas thus gained by the pupils are used as the topic of the class recitation. With pictures and wall maps the thought contained in the pupil's notes is discussed before the reading lesson is attempted. The pupil's note books contain the original text that has been acquired by means of field and atlas work.

Summary.—Briefly summarized, the work consists of: First, direct observation of geographical subject-matter as it occurs in the neighborhood of the school; second, class-room discussion of the observed facts; third, written home lessons on questions based on the previous work; fourth, oral and written reproduction; fifth, reproduction in map form.

And in conjunction therewith a similar sequence of lessons is based upon the atlas and other maps, of physical features, temperature, winds, rainfall, vegetation, productions, density of population, races, and religions. Investigation, adapted to the capacity and develop-

ment of the pupils, is made into the nearer and the more remote causes and effects, especially causes.

The results have been a quickening of interest on the part of the pupils, the development of more thorough method on the part of teachers, and the elimination of many features of work which had hitherto tended to debase geography as a study and to blunt the intellect of the pupil. Self-help through a series of exercises logically related and leading to an independent result is perhaps a good epitome of the plan that we follow.

ICE CLIFFS ON WHITE RIVER, YUKON TERRITORY

By C. Willard Hayes and Alfred H. Brooks,
U. S. Geological Survey

The article by Martin W. Gorman on Ice Cliffs on the White River, Yukon Territory, published in the March number of the National Geographic Magazine, contains several erroneous statements and unwarranted conclusions on which we want to make some comments, not in a controversial spirit, but entirely in the interest of correct geographic information. It may be stated at the outset that one or both of the writers have examined and mapped the White River from its source to its mouth.

In the first place Mr Gorman's distances are incorrect, the length of the White River from where it emerges from the northern lobe of the Russell Glacier to its confluence with the Yukon is approximately 200 miles, instead of "rather more than 300 miles." Instead of "crossing White River about 200 miles above the mouth," the point reached by Mr Gorman could not have been more than 100 miles above the mouth.

While* it is undeniably true that the maps of White River basin leave much to be desired, it seems equally true that Mr Gorman was either unfamiliar with the maps which are available or unable to make proper use of them. It appears likely that the Donjeck River was mistaken for the main trunk of White River, and the latter for the Katrina, an insignificant tributary which enters from the west 70 miles

*Compare maps accompanying article entitled "An Expedition into the Yukon District," by C. Willard Hayes, Nat. Geog. Mag., vol. iv. Also map 10 in "Explorations in Alaska, 1898," U. S. Geol. Survey, 1899.

below the Donjeck. The Klotassin is not "the chief eastern tributary of the White," but is much smaller than either the Klutlan or Donjeck. The latter itself receives an eastern tributary, the Kluantu, which is larger than the Klotassin. This confusion in identifying the rivers of the region, and the exaggerated estimate of distances, together with the air of confidence which pervades the article in question, render it very misleading to the geographic student.

Coming to the main point of the paper, the alleged ice cliffs, it appears that Mr Gorman has mistaken the permanently frozen silt in which the river channel is cut for beds of ice, such as were described by Cantwell on the Kowak. The frozen silts and subsoils are characteristic of the Arctic and subarctic regions, and may be observed on almost any stream in the Yukon basin. It is difficult to understand why a solidly frozen subsoil should be less favorable for the growth of forests than a layer of clear ice, and indeed Lieutenant Cantwell* describes the ice strata of the Kowak as covered by a few feet of soil bearing "a luxuriant growth of mosses, grass, and the characteristic Arctic shrubbery, . . . and a dense forest of spruce trees from 50 to 60 feet high and from 4 to 8 inches in diameter." The "depauperate condition of the trees" described by Mr Gorman must therefore be explained by some other cause than the presence of subjacent ice strata or a frozen subsoil.

On the Lower White, some eight miles from its mouth, one of the writers had opportunity to examine a bluff of frozen silt, of which some 20 feet was exposed by the cutting action of the river. A dense growth of vegetation was found above the frozen silt, including many large spruce trees. Even if masses of clear ice were found in that portion of the White River Valley visited by Mr Gorman they could scarcely be regarded as glacial ice, since the region lies mostly outside the limit of general glaciation and bears few, if any, marks of the former presence of local glaciers. It is conceivable that masses of glacial ice might be preserved for an indefinite period in the subarctic climate of Alaska if covered by a thick layer of insulating material, such as moss. It is observed, however, that sand and gravel do not form an efficient non-conductor, and that where the soil is laid bare by burning off or otherwise removing the moss the subsoil thaws out to a considerable depth. Since ice masses at the margin of a glacier are at first covered only by sand and gravel, the chances of their preservation until covered by vegetation are small.

* Nat. Geog. Mag., vol. vii, p. 345.

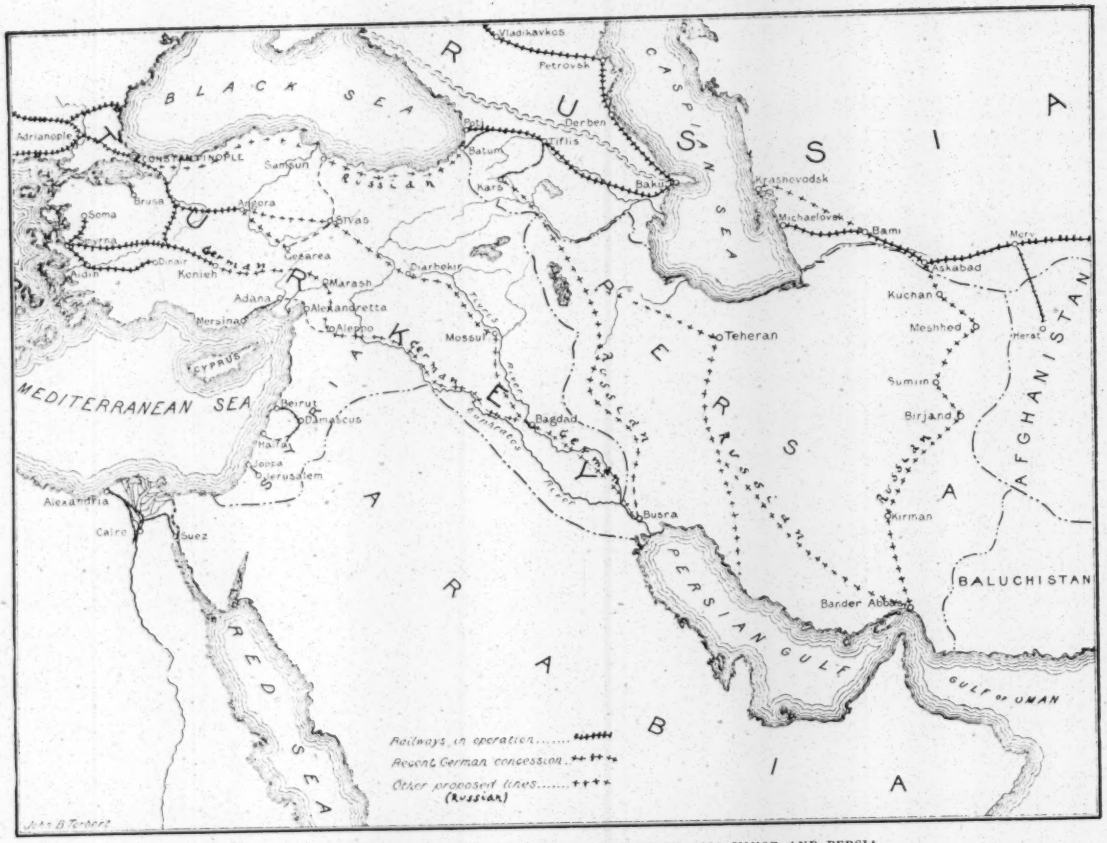
If a concise definition of a glacier be accepted, such isolated masses of buried ice would hardly be included, being in fact a part of and closely related to the frozen subsoil which is found nearly everywhere in the Arctic province. Moreover, the deposits which overlie the ice, as described by Mr Gorman and observed by the writers, are soils and silts, and entirely non-glacial. If these ice masses were buried remnants of former glaciers, then would be associated with them glacial material.

Speaking of recent volcanic activity in the valley of White River, Mr Gorman makes the surprising statement that not a trace of the volcanic ash which forms so noticeable a feature at the banks of the Yukon is to be seen along the banks of the White, except near the mouth. If he had possessed even a slight familiarity with the region in question or with the literature* of the subject, he would have known that many hundred square miles in the Upper White River basin are covered with this volcanic ash, with many local drifts from 50 to 100 feet in depth. The ash covers both valley bottoms and mountain tops.

The thin stratum shown in the banks of the Yukon is merely the attenuated eastern edge of the deposit which reaches its maximum in the region from which Mr Gorman says it is entirely absent. We entirely agree with his dissent from Heilprin's theory that the ash was deposited in a lake bed covering the upper Yukon basin, but on quite different grounds from those which he adduces.

A final case of superficial observation remains to be noted. Mr Gorman states that the water of White River is "surcharged with a mixture of fine blue clay and granitic sand" which gives it the characteristic white color from which it derives its name. Many of the upper tributaries are glacial streams, and hence carry rock flour and glacial pebbles like other streams of similar origin, but this constitutes only a small proportion of the sediment. Much the larger part consists of the light pumiceous volcanic ash which covers the upper half of the basin, as was proven by a microscopical examination of the sediments. Being entirely unconsolidated and only in part covered by vegetation, it is rapidly eroded, and on account of its low specific gravity large quantities of relatively coarse material remain in suspension in the water.

*An Expedition Through the Yukon District, pp. 146-150; Explorations in Alaska, p. 69.



MAP SHOWING RAILWAYS CONSTRUCTED AND PROPOSED IN ASIA MINOR AND PERSIA

A GERMAN ROUTE TO INDIA

Every move of Russia toward India is watched and studied the world over. But another power is aiming eastward, unnoticed—not urged by an ambition for territory, but impelled by a desire for commercial supremacy.

For ten years the German Emperor has puzzled Christian nations by his evidences of brotherly love for the Sultan of Turkey; but gradually German commerce has invaded the Turkish Empire; German commercial agents are favored everywhere; German capital obtains first concessions from the government in mining, for factories, in every industry. German bankers have acquired control of the main railway lines in Asia Minor, arranged for direct trains daily from Berlin to Constantinople, and then sought the right to extend the Smyrna-Konieh Railroad to the Persian Gulf. The concession has been granted, the route carefully surveyed, and the company guarantees that the road will be completed within eight years.

When the railway is constructed Berlin will be within five days of the Persian Gulf. German merchandise can then be sent without change in freight cars from Berlin across the Bosphorus, through Asia Minor to Busra, whence steamers can reach Karachi and the mouth of the Indus in 48 hours.

In a political sense a railway through Asia Minor will not be of great immediate importance to Germany, but the building of the road by her capital and under her patronage may end in her acquiring a commercial port at some point on the Gulf. Probably the main result will be the strengthening of the alliance between the Emperor and the Sultan. The purpose of this political friendship is still an enigma, but evidently the Emperor aims to obtain for Germany a route to India distinct from either the English or the Russian route. The construction of a railway through Asia Minor is an important step in this direction.

The Ottoman Empire will naturally profit from a line connecting its capital with its richest and most productive provinces. The organization of its military forces will be facilitated, as the larger proportion of the Turkish soldiers come from the interior provinces. While the new railway will not follow the direction preferred by the Sultan, namely, toward Armenia and the Caucasus—a route that would

enable him to concentrate his troops where they could most advantageously resist a Russian advance—it will enhance his power in another direction. Today the Sultan is a negative factor in the contest for influence on the Persian Gulf; but with a road through Asia Minor he will become a considerable, if not prominent, force in any partition or settlement of the possession of the Gulf. The road would enable him in a few days to mobilize his army of a quarter of a million men either at Constantinople or Busra.

To England also the German route ought to be an advantage. To be sure, it makes Germany her competitor in the Indian markets; but this competition is more than balanced by the new demands that will constantly be arising. The markets should be large enough for both English and German merchants. Politically, however, it will be more important for Great Britain to maintain her friendship with Germany, and possibly render it advisable for her to endeavor to regain the alliance of Turkey.

That Russia is intensely interested in a German railway to the Persian Gulf has been repeatedly emphasized by the actions of the Russian Government since the concession was granted in 1899. First, she demanded of Turkey prior railway concessions on all lines through Asia Minor to the north of the German concession. Recent reliable reports from Constantinople state that the Sultan has been compelled to yield to the demand. This concession includes a line from Batum to Constantinople, skirting the shores of the Black Sea. Second, she has renewed her plans for the continuation of the Trans-Caucasian Railway from Kars in a line almost directly southward to some point on the Gulf near Busra. There is a probability that this railway may be completed before the German road. Third, she is pushing across Persia several lines that are also to end at the Persian Gulf. The general direction of these roads is indicated on the map (page 202), and they also will probably be completed before the German road becomes a fact.

The recent rapid increase of Russian influence in Persia, a striking instance of which is the loan to the Shah, has been in large measure occasioned by the present inability of England to interfere. But the prospect of a railway controlled by another power and terminating on the Persian Gulf has quickened Russia's ambition to reach the Indian Ocean.

GILBERT H. GROSVENOR.

THE CUBAN CENSUS

The results of the Cuban Census, in many respects unexpected, show on the whole a gratifying condition of affairs in the island. The accompanying diagrams emphasize the more important facts. From the relatively large proportion of native-born whites, 58 per cent of the total population, it is evident that the administrative control will remain in the hands of the native white Cuban when the United States withdraws from the island. Thus Cuba will not become a second Haiti.

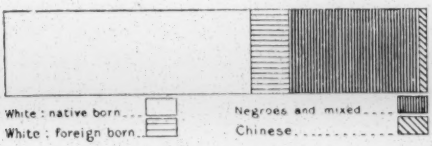


DIAGRAM SHOWING POPULATION BY COLOR

The right to vote at the municipal election June 16—a right gained by the ability to read and write or by the ownership of property—is possessed by about 140,000 native Cubans. As so many citizenships were in suspense at the time the census was taken, it is impossible to state exactly how many Spaniards will also have the right to vote, but they will not exceed 30,000, if they reach that number.

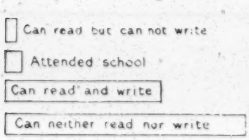


DIAGRAM SHOWING LITERACY OF THOSE TEN YEARS AND OVER

Of the total population of 1,572,797, 1,108,709 are single, 246,350 are married, and 131,788 live together as husband and wife by mutual consent. In justice to the Cuban, however, it should be stated that unions formed by mutual consent are considered no less binding and are no less permanent than those sanctioned by the marriage ceremony.

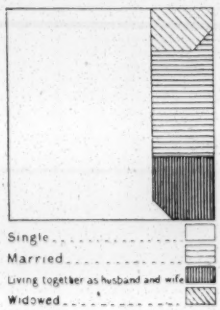
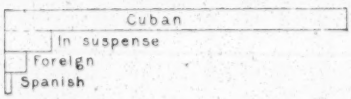


DIAGRAM SHOWING CONJUGAL CONDITION

The excessive fees charged for weddings, perhaps, explain the frequency of the omission of the ceremony.



The census returns show the need of a thorough system of education. Of persons over ten years of age, 43 per cent cannot read or write, while only 11.4 per cent of the children under ten years are attending school.

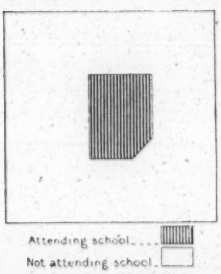


DIAGRAM SHOWING PROPORTION OF THOSE UNDER TEN YEARS OF AGE ATTENDING SCHOOL

FRANK HAMILTON CUSHING

Frank Hamilton Cushing died at his residence in Washington, D. C., on April 10, 1900. From his boyhood he had been the friend and student of the American Indian. In 1875, when only 18 years of age, he was commissioned by Professor Baird, Secretary of the Smithsonian Institution, to make collections for the National Museum. The years of 1879–1885 he lived among the Zuni Indians of New Mexico, he learned their language and traditions, and was initiated into their esoteric priesthood and elected their war chief. Thus he was able to learn the character of Indian secret societies. Mr Cushing discovered the ruins of the Seven Cities of Cibola in 1881, and later conducted excavations among them and the great buried cities of southern Arizona. In 1895 he discovered extensive remains of a sea-dwelling people on the gulf coast of Florida, and the following year led an expedition thither. At the time of his death he was prominently connected with the Bureau of American Ethnology. He was the author of numerous monographs and papers on the myths and customs of the Zuni and the prehistoric races of New Mexico, Arizona, and the Southern States.

GEOGRAPHIC LITERATURE

The International Geography. By seventy authors. Edited by Hugh Robert Mill. 8vo, pp. 20 + 1088, with 488 illustrations. New York: D. Appleton & Co. 1900. $3.00.

This book is a terse and comprehensive description of the earth and of the various countries of which it is composed. It is divided into several parts, of which the first relates to the earth as a whole, with chapters on principles and progress of geography, mathematical geography, maps, plan of the earth, nature and origin of land forms, the ocean, atmosphere and climate, the distribution of life, and political and applied geography. Succeeding parts are devoted to descriptions of continents and countries. These, as well as the chapters of Part I, were written by different authorities, and the result, owing doubtless to excellent planning and able editing, is fairly uniform. Here and there the personality or bias of a writer appears, but not often or obtrusively.

The apportionment of space among the various countries is very well arranged: To the United States are assigned 64 pages, to Canada 25, to Great Britain 59, to France 22, and to Germany 32. The list of authors includes such names as Bryce, on Natal, the Transvaal, and Orange Free State; Chisholm, on Europe and China; Davis, on North America and the United States; Keane, Keltie, Lapparent, Markham, Murray, Nansen, and Penck.

The descriptions of countries are brief, succinct, and encyclopedic in form, though not in arrangement, and each is followed by tables giving summary statistics of areas, population, and industries. As a book of reference this work is of great value.

North American Forests and Forestry. By Ernest Bruncken. New York: G. P. Putnam's Sons. 1900.

This book deals more particularly with the relation of the forest problem to the natural life of the American people. With this object in view, Mr Bruncken's choice of subjects and the general outlines of his treatment are in most respects admirable. After a brief introduction, in which his purpose is defined, he begins with a discussion of the North American forests, of the relation between man and the forests of this country, of forest industries, and of the destruction and deterioration of the forests. He is then ready to deal with the nature and object-matter of forestry, the finance and management of forest lands, the relation of forests to the government, and the difficulties which beset the practice of forestry (conservative lumbering) in the United States. A final chapter, which will be much read by the numerous young men who are turning their attention to this new line of possible work, treats understandingly of forestry as a profession.

Mr Bruncken's book is much better calculated than any other with which I am acquainted to convey a correct general idea of the forest problems of the United States. He has seized the principal facts in the situation with intelligence and has set them forth in a way easily understood. If there is to be criticism of so useful a book, it should be directed chiefly against the fact that the author's conception of the forest problems of the United States is much too strictly limited by his acquaintance with those of the white pine states about the headwaters of the Mississippi. It is to be regretted also that there is a lack of accuracy in detail. For example, the silvicultural notes in the second chapter are much too frequently based on the facts of European rather than of American forests, or upon an imperfect knowledge of the latter. There is a similar lack of precision in many parts of the book. However, since Mr Bruncken expressly says that his book is not intended for professional foresters, the blemish of such misconceptions is less great than it would otherwise be. On the whole, Mr Bruncken's book promises well both for its own present utility and for the future work of the writer. GIFFORD PINCHOT.

Tarr and McMurry's Geographies. First book. Home Geography and the Earth as a Whole. By Ralph S. Tarr and Frank M. McMurry. Small 8vo, pp. xv + 279. New York and London; The Macmillan Co. 1900. 60 cents

This little book, the first of a series of geographical text-books, is an attempt to combine the inductive and deductive methods in the teaching of geography. The first 107 pages are devoted to developing, from the home surroundings, a knowledge of the formation of soils, mountains, valleys, and rivers, the phenomena of the sea and air, and, finally, industries and government. With all this as a preface, the remainder of the book is a description of the earth as a whole and of its parts, much as in the older elementary geographies. The style throughout is admirably adapted to holding the child's interest, while imparting information. The text is freely supplemented with questions and suggestions, and the numerous maps and cuts are very illustrative and finely executed.

It will be interesting to learn the measure of success attained by this experiment in geographic text-books. If unsuccessful, it will be a failure of the principle, not of the form, for the latter is in all respects nearly faultless.

GEOGRAPHIC MISCELLANEA

THE Weather Bureau service is to be extended by the establishment of observatories in all Mexican Gulf ports between Tampico and Progreso. They will be under the charge of the weather officials at Galveston, Texas.

THE Indian famine has increased to such an extent that it now affects an area of territory in which there is a population of over 60,000,000. The government gives relief work to about four millions, and food to five millions more.

DR NANSEN will lead a scientific party to the northern seas this summer for the study of the ocean currents in the vicinity of Iceland. The expedition, which is organized under the auspices of the Norwegian government, will return in the autumn.

THE work of testing arctic currents by setting wooden casks adrift on the ice north of this continent will be continued this year by the Geographical Society of Philadelphia. Each cask contains a bottle having in it a blank form to be filled out by the finder. The work was begun by the Society last year at the suggestion of Admiral Melville.

IN view of the imprisonment of General Cronje and other Boer officers at St Helena, it may be interesting to know that a submarine cable has been laid from Cape Town to the island, where it was landed in November, 1899. The present tariff is $1.70 per word, but on the completion of the line the rate will be reduced to 97 cents to England.

MR GROVE KARL GILBERT, of the United States Geological Survey, President of the American Association for the Advancement of Science, and a frequent contributor to the NATIONAL GEOGRAPHIC MAGAZINE, has been awarded the Wollaston Medal for 1899. This medal is given annually by the Geological Society of London for the most important geological discovery of the year.

THE number of vessels that passed through the Baltic Canal during the twelve months ending March 31, 1899, was 25,816, with an aggregate tonnage of 3,117,840. This was an increase of 2,708 ships and 648,045 tons over the preceding year. The total receipts amounted to $388,000, and while this was an increase of 25 per cent over the previous year, it still fell short of the cost of maintenance by $103,800.

THE death is announced of Mr Brandt, the chief engineer in charge of the work of digging the Simplon Tunnel through the Alps, which will open a new route between north and south Europe. Mr Brandt was the inventor of the hydraulic rotary drilling machine with which the work is being done, and also of an ingenious machine for removing the débris after the blasts. This machine throws a powerful stream of water by jerking impulses into the stones loosened by the blast and thereby loosens the dirt. Another invention of Mr Brandt's, a system of ventilation, has been tried in the mines in Spain and has proved effective. The excavation of the Arlberg Tunnel in 1867, through which railroad communication is made between Switzerland and Austria, was directed by Mr Brandt.

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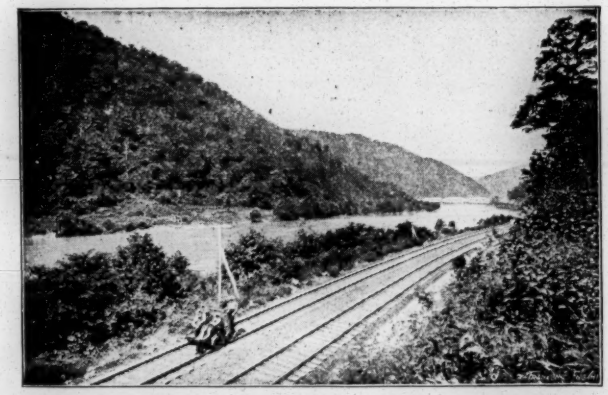

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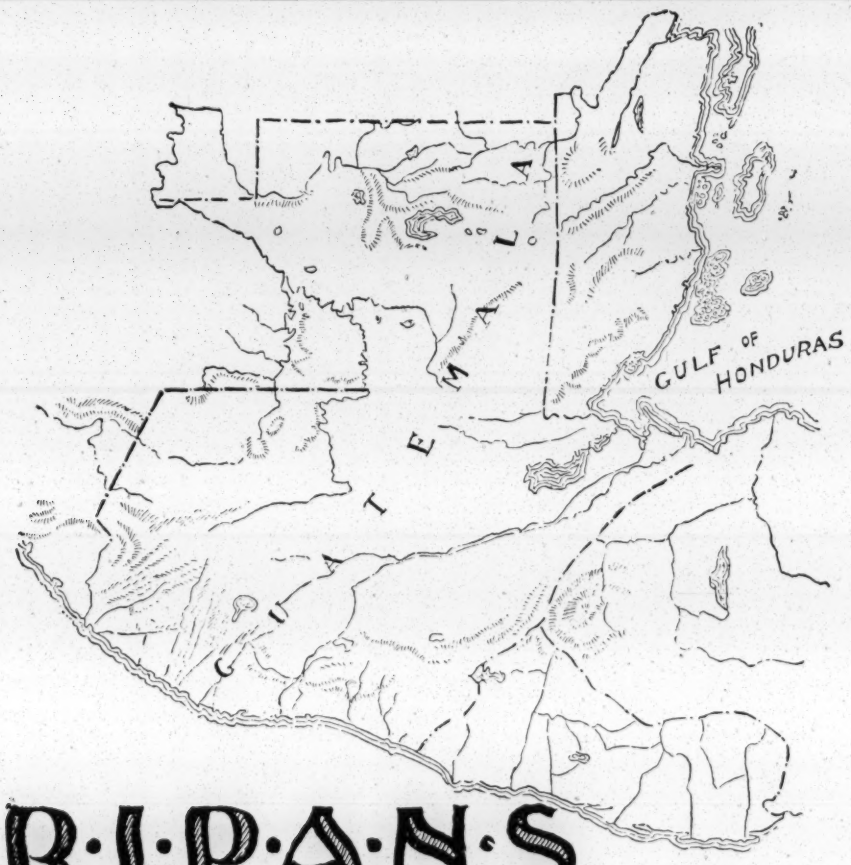

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THE ANNUAL RECEPTION. The Board of Managers has deemed it advisable, in view of the proposed excursion to Norfolk, Virginia, on May 27-28, to substitute for the formal Annual Reception an informal meeting of the Society, at which eclipse phenomena and methods of observation will be discussed by well-known astronomers. The meeting will be held at **National Rifles' Armory Thursday, May 3, at 8 P. M.**

SHORT DISTANCE EXCURSION, SATURDAY, MAY 12. Persons taking part in this excursion will proceed by electric cars to Anacostia and thence on foot to the top of Good Hope Hill, thence to Fort Stanton and Congress Heights, returning on the electric cars from the latter point. The party will rendezvous at the east end of Anacostia Bridge at 2 P. M.

An account of the physical development of the District of Columbia region, all the prominent features of which can be viewed from Fort Stanton, will be given, and attention will also be devoted to the historical features. Special invitations for this excursion will be extended to teachers of physical geography in the public schools of this city. There will be no expenses except for car-fare. Omnibuses will be on hand for the accommodation of those who do not care to walk up Good Hope Hill.

SHORT DISTANCE EXCURSION, SATURDAY, MAY 26. This excursion will be a trip to Bladensburg and return. Persons intending to join the excursion will rendezvous at the corner of 15th and G Streets at 1.30 P. M. This trip promises to be of special interest, in view of the historic associations connected with the early history of Bladensburg and vicinity. Attention will be given to the botany, geology, and especially the history of the region visited. The expense will be twenty cents for the round trip.

In case of rain on any of the dates above named, the excursions will be postponed until the succeeding Saturday.

THE ANNUAL FIELD MEETING

of the NATIONAL GEOGRAPHIC SOCIETY has been arranged so that the members of the Society may have an opportunity to observe the total eclipse of the sun which takes place on Monday, May 28. As the center of the belt of totality will pass near Norfolk, Virginia, the board of managers of the Society have made a conditional contract with the Norfolk & Washington Steamboat Company for an excursion to that city and vicinity. The party will leave Washington by the Norfolk & Washington steamer at 7 o'clock P. M., Sunday, May 27. Returning, leave Norfolk at 6 o'clock Monday afternoon, reaching Washington on Tuesday morning in time for breakfast at home.

The total duration of the eclipse will be 2 hours, 34 minutes, and 6 seconds, of which 1 minute and 26 seconds will be total. The eclipse will be entirely over at 10:15.6 A. M., and from that hour until 6 o'clock the steamer will be at the disposal of the party for a cruise around the harbor and visits to the many points of interest around Norfolk, such as the Navy Yard, Portsmouth, Newport News, Fortress Monroe, the Indian Industrial School at Hampton, etc.

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